REMARKS

Reconsideration of this application, as presently amended, is respectfully requested.

Claims 29-128 are now pending in this application, new claims 62-128 having been added by the present Amendment. Claims 29-61 stand rejected.

Rejection under 35 U.S.C. §101

Claims 29-61 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. For the reasons set forth in detail below, this rejection is respectfully traversed.

The Office Action asserts "none of the claims are limited to practical applications in the arts." See Office Action, page 2, Item 2. The Office Action further asserts "Applicant cites no such specific results to define a useful, concrete and tangible result. Neither does Applicant specify the associated practical application with the kind of specificity the Federal Circuit used." See Office Action, page 4, Item 7. Finally, the Examiner asserts that the claims "manipulated a set of abstract 'structure' to solve purely algorithmic problems in the abstract (i.e., what kind of 'structure' the invention designs? Algebraic structure? Semantic structure? Musical structure? Physical layout structure)."

The Examiner's concern seems to be that the claimed structure is an abstract idea, as evidenced by his asserting that an "abstract" structure is manipulated in the claims.

Claim 29 has been amended to clarify that the claimed structure is "a physical structure" to obviate the Examiner's assertion that the claims recite abstract concepts.

The current legal requirement for a claimed process to be patentable subject matter is that the claimed invention as a whole must produce a "useful, concrete and tangible result." *AT & T Corp. v. Excel Comm., Inc.*, 172 F.3d 1352, 1356 (CAFC, 1999), *State Street Bank*, 149 F.3d at 1373, 47 USPQ2d at 1601-02.

It is submitted that the "offspring profile representing a new outline for the design, the new outline delineating a new shape of the physical structure" recited in independent claim 29 is a "useful, concrete and tangible result" that renders the claim statutory.

As noted in the Office Action, the Federal Circuit ruling in *State Street Bank* found the transformation of data, representing discreet dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm, formula or calculation because it produces a useful, concrete and tangible result – a final share price. In *AT & T Corp. v. Excel Comm. Inc.*, the Federal Circuit found a process that uses a Boolean [logic] principle to produce an indicator value was statutory because it produces a useful, concrete, tangible result.

In accordance with the invention recited in claim 29, by evolving a "parent profile representing an outline for design, the outline delineating a shape of a physical structure" into an "offspring profile with a variation in at least one dimensional characteristic of at least one of the segments [into which the parent profile is divided]," a profile "representing a new outline for the design, the new outline delineating a new shape of the physical structure" is produced.

The offspring profile representing a "new outline for the design, the new outline delineating a new shape of the physical structure" is clearly a useful, concrete and tangible result,

and is not an abstract concept. The present specification makes clear that by decomposing profiles into segments and evolving such profiles, the present invention can enrich the design process with meaningful offspring profiles reflecting various combinations of preferred characteristics of the parent profiles. This facilitates quick and easy generation of creative concept variations and reduces the overall design time.

Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §101 are respectfully requested.

Rejections under 35 U.S.C. §112

Claims 29-61 were rejected under 35 U.S.C. §112, first paragraph, for failing to disclose how to practice the present invention.

Because the rejection under §112, first paragraph, is connected to the rejection under 35 U.S.C. §101 (discussed above), it is respectfully submitted that the rejection under §112, first paragraph, is also obviated in view of the amendments and remarks to overcome the §101 rejection.

Rejections under 35 U.S.C. §102

Claims 29-61 were rejected under 35 U.S.C. §102(b) as being anticipated by **Rostoker, et al.** For the reasons set forth in detail below, this rejection is respectfully traversed.

The Examiner has cited two references to **Rostoker et al.** in the Office Action, but did not specify which reference is applied against the claims. Applicants representative contacted the

Examiner several times to determine which reference was actually applied against the claims. The Examiner did not respond to any of the voice mail messages left by Applicants' representative. Although both references have similar disclosures, the reference that appears to be applicable is the '419 reference.

Rostoker et al. '419 is directed to an automated design system for producing optimized cell placement for an integrated circuit chip. The Examiner focuses on the disclosure of a "simulated evolution" type design algorithm (see, e.g., discussion in Background of the Invention, col. 6, lines 20-29 and col. 33, line 36 et. seq.).

Although **Rostoker et al.** '419 relates to integrated circuit design, the Examiner is giving a very broad interpretation to the claims and *apparently* considers "selecting a parent profile representing an outline for design of a structure" to read on an initial population of M placements of cells (column 33, lines 47-48); "dividing the parent profile into segments, each of the segments having at least one dimensional characteristic" to read on the individual cells in an integrated circuit design; and "evolving the parent profile using a genetic algorithm to produce an offspring profile with a variation in the at least one dimensional characteristic of at least one of the segments, the offspring profile representing a new outline for the design of the structure" to read on the new placement of cells.

In summary, the Examiner appears to consider the overall integrated circuit design to be the parent profile, the individual cells to be the divided parent profile (segments), and the random transposition of cells to correspond to the evolving the parent profile to an offspring profile.

As noted above, claim 29 has been amended to clarify that the parent profile represents an outline delineating the shape of a physical structure. In contrast, the cells disclosed by **Rostoker et al.** are *representations* of logic elements, such as a gate (see col. 2, lines 40-42). However, the cells do not delineate the shape of a physical object. In the **Rostoker et al.** reference, the cells are illustrated as squares or blocks (see, e.g., Fig. 13) and are merely representations of a logic gate or circuit and do not delineate a shape of a physical structure. The actual shape of a logic gate is not a square or block, and instead may actually be formed of polysilicon lines, metal lines are active areas.

In other words, the **Rostoker et al.** system manipulates (i.e., swaps or transforms) cells and other circuit elements that do *not* delineate the shape of the physical structure of the circuit element. Further, **Rostoker et al.** do not manipulate an outline for design, the outline representing a shape of a physical structure.

In view of the above amendments and remarks, reconsideration and withdrawal of the rejection under 35 U.S.C. §102 are respectfully requested.

Rejections under 35 U.S.C. §103

Claim 37 was rejected under 35 U.S.C. §103 as being obvious over **Rostoker et al.** in view of **Koza** (USP 5,136,686).

Claim 37 depends from claim 29 is allowable for the same reasons set forth above by virtue of its dependency thereon.

New Claims

New claims 62-128 have been added by the present Amendment. New independent claim 62 recites a genetic design apparatus corresponding to the genetic design method recited in claim 29. New independent claim 95 recites a graphical user interface. Finally, new independent claim 128 recites a computer-readable medium encoded with processing instructions for executing a genetic design method similar to claim 29. Each of independent claims 62, 95 and 128 recite the invention in a manner similar to independent claim 29, and are allowable for the same reasons set forth above with respect to claim 29.

Further, with respect to new claim 128 directed to "A computer readable medium encoded with processing instructions...," the U.S. PTO has consistently found this type of claim to be a statutory product claim. More specifically, the U.S. PTO views the computer readable medium encoded with a program as defining structural and functional interrelationships between the computer hardware components that permit the program's functionality to be realized (MPEP §2106).

CONCLUSION

In view of the foregoing amendments and accompanying remarks, it is submitted that all pending claims are in condition for allowance. A prompt and favorable reconsideration of the rejection and an indication of allowability of all pending claims are earnestly solicited.

If the Examiner believes that there are issues remaining to be resolved in this application,

the Examiner is invited to contact the undersigned attorney at the telephone number indicated

below to arrange for an interview to expedite and complete prosecution of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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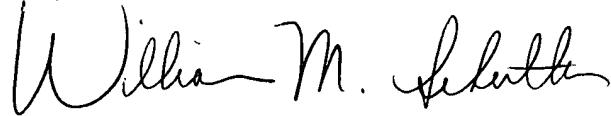
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